REMARKS

Applicants and the undersigned are most grateful for the time and effort accorded the instant application by the Examiner. On July 14, 2006, Applicants' counsel conducted a telephone interview with the Examiner and a Primary Examiner, Michael Opsasniak, in which the present application and the applied art were discussed. The claims were discussed with respect to the outstanding 103(a) and 112 rejections, however no agreement was reached with respect to the claims.

Claims 1-21 were pending in the instant application at the time of the outstanding Office Action. Of these claims, Claims 1, 11, and 21 are independent claims; the remaining claims are dependent claims. Claims 1, 11, and 21 have been rewritten. Applicants intend no change in the scope of the claims by the changes made by these amendments. It should also be noted these amendments are not in acquiescence of the Office's position on allowability of the claims, but merely to expedite prosecution.

Claims 1-21 stand rejected under 35 USC § 112 as failing to comply with the written description requirement. The limitation in contention is that of "speech and audio data as input data". During discussion with the Examiner and the Primary Examiner, it was shown that there was basis for this limitation in the specification. Specifically, in the field of the invention, it was shown that the invention could be used for enrolling target speakers in a speaker verification system. Other mentions of using the invention in this context are prevalent throughout the specification. It is respectfully submitted that because the data from speakers is inherently audio and speech data, the limitation finds

basis in the specification. Thus, reconsideration and withdrawal of this rejection is respectfully requested.

Claims 1-3, 11-13, and 21 stand rejected under 35 USC § 103(a) as obvious over Passera in view of Kuhn et al. Further, Claims 4-9 and 14-19 stand rejected under 35 USC § 103(a) as obvious over Passera in view of Kuhn et al. Reconsideration and withdrawal of this rejection is respectfully requested.

The present invention broadly contemplates, in accordance with at least one presently preferred embodiment, an apparatus for facilitating data clustering. (Page 3, lines 4-5) The apparatus or method of the invention can be executed independent of, or even before the introduction of, a model for the data. The present invention has the ability to obtain raw input data. (Page 3, lines 5-6) Upon obtaining the input data, the present invention is able to create a predetermined number of non-overlapping subsets of the input data. (Page 3, lines 6-7) The creation of the predetermined number of non-overlapping subsets of the input data may be done in a recursive manner using eigen-decomposition to repeatedly split the data sets. (Page 5, lines 3-15) As mentioned above, this clustering of the speech and audio data is executed without any dependency or utilization of a system or model with which to adapt or compare the data. More specifically, the clustering of the data occurs through a recursive process in which the data is first modified to be "zero mean" data. An eigenvector decomposition of this modified data is performed, and the resulting data is split based on a threshold that can split the data in an n-way manner. The clustered data obtained by the invention may then be used in adapting systems or models as is well-known in the art. An application of the

instant invention includes the enhancement of a procedure such as the enrollment of target speakers in a speaker verification system by speeding up the training time in the system. (Page 8, lines 1-4) Thus, the present invention facilitates efficient data clustering based on recursion using eigen-decomposition to split the data into separate clusters.

As best understood, the invention set forth by Passera contemplates a system for creating a description of a model system's behavior by analyzing the sensitivity of the model in subspaces of an input space of the model. (Column 2, lines 1-4) Initially, Passera creates a model by selecting a kind of model appropriate for the problem at hand. Given the problem and model, Passera identifies and standardizes input fields that affect the solution to the defined problem. A training data set is generated and applied to the model using a training procedure and the model is created. Then an input data set is generated, possibly from the training data set, and is input to a sensitivity analysis module which determines sensitivity measures. (Column 3, lines 2-30) The sensitivity analysis provides a profile of the input space of the model corresponding to the sensitivity of the outputs of the model with respect to the inputs to the model. (Column 2, lines 4-7) A data splitting module receives the input data set and the sensitivity measures and splits the input data set into subspaces according to the sensitivity profile defined by the sensitivity measures. (Column 4, lines 58-63)

The sensitivity analysis system of Passera is in stark contrast to the present invention. As discussed in the specification and in the independent claims, the instant invention obtains input data and facilitates data clustering of that input data independent of any model wherein the splitting of the input data into a predetermined number of non-

overlapping subsets occurs independent of a model. Passera initially selects a model, trains data to that model, and then, utilizing the model, performs a sensitivity analysis which further splits the data in order to better understand the behavior of the model. Specifically, the sensitivity measures which select the threshold upon which the data is split in Passera (column 5, lines 34-49, Figure 4) are obtained by applying input test data to a model and calculating values based on the output data received from the model. (column 3, lines 29-54)

It is respectfully submitted that Passera clearly falls short of present invention (as defined by the independent claims) in that, *inter alia*, it does not disclose **facilitating data clustering of input data independent of any model wherein the splitting of the input data into a predetermined number of non-overlapping subsets occurs independent of a model.**

Kuhn et al. does not overcome the deficiencies of Passera set forth above. In that regard, Kuhn et al. applies the eigenvector decomposition to speaker specific supervectors in order to determine a feature space to represent speaker models. Kuhn et al. deals with speaker and environment adaptation, which is fundamentally different from the data clustering and sensitivity analysis set forth in Passera. Eigenvector reduction is used in Kuhn et al. to obtain the eigenvoice space. (column 7, lines 7-11) The eigenvoice space is necessary for speaker normalization and adaptation. The construction of the eigenvoice space to represent speakers as in Kuhn et al. is constructed using one model per speaker, with each model possibly representing a Hidden Markov Model. (column 5, lines 51-65) There is no natural connection from the construction of the eigenvoice space of Kuhn et

al. to the input spaces of Passera. Additionally, there is no such connection to the instant invention, in which the eigen decomposition is applied to raw data that is independent of any model. Over and above the lack of connection to the instant invention, Kuhn et al. is a model-dependent system, thus making it inapplicable as prior art to the invention.

A 35 USC 103(a) rejection requires that the combined cited references provide both the motivation to combine the references and an expectation of success. Not only is there no motivation to combine the references, no expectation of success, but actually combining the references would not produce the claimed invention. Thus, the claimed invention is patentable over the combined references and the state of the art. Thus, it is respectfully submitted that the combination of Passera with Kuhn et al would not produce the claimed invention.

In view of the foregoing, it is respectfully submitted that independent Claims 1, 11, and 21 fully distinguish over the applied art and are thus allowable. By virtue of dependence from Claims 1 and 11, it is thus also submitted that Claims 2-10 and 12-20 are also allowable at this juncture.

The "prior art made of record" has been reviewed. Applicants acknowledge that such prior art was not deemed by the Office to be sufficiently relevant as to have been applied against the claims of the instant application. To the extent that the Office may apply such prior art against the claims in the future, Applicants will be fully prepared to respond thereto.

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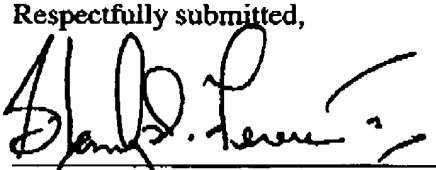
In summary, it is respectfully submitted that the instant application, including Claims 1-21, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited. Applicants' undersigned attorney would welcomes further discussion with the Office in the event there are any further issues in this application.

Respectfully submitted,



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